EXHIBIT 1

Data Saver mode

Mobile data use is costly and even more so where data plan costs are not affordable by all. Android users need the ability to reduce data use or block it from apps altogether. The Data Saver feature in the Android 7.0 release provides this functionality to the user.

The Data Saver (https://developer.android.com/training/basics/network-ops/data-saver) feature can be turned on or off by the user. App developers should use a new API to check if Data Saver mode is on. If it is on, the app developers can handle the situation gracefully by tuning their applications for low- or no-data access.

End users benefit as they will be able to control which apps can access data in the background and which can access data only while in the foreground. This ensures desired background data exchange when Data Saver is on per user control.

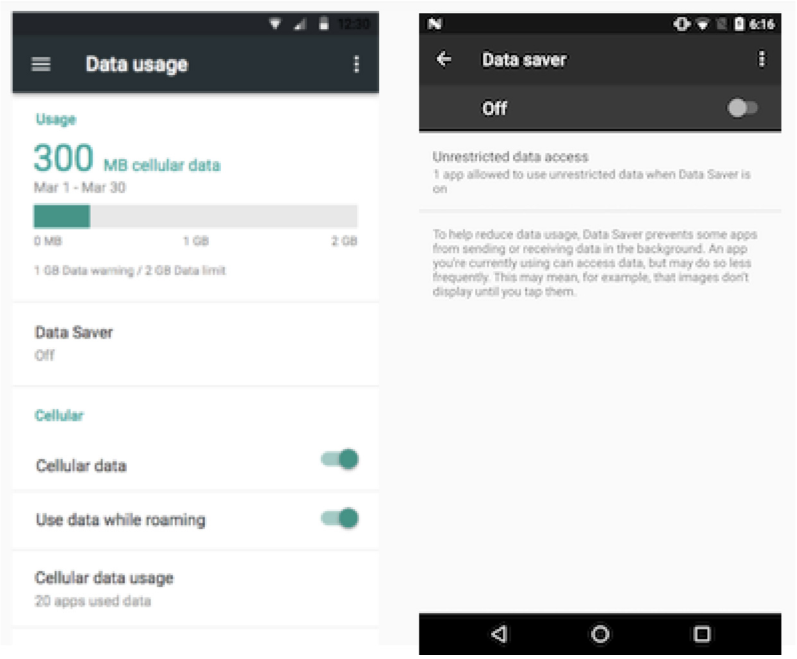
Implementation

Since the Data Saver is a feature in the platform, device manufacturers gain its functionality by default with the N release. Find the source files in: packages/apps/Settings/src/com/android/settings/datausage (https://android.googlesource.com/platform/packages/apps/Settings/+/main/src/com/android/settings/datausage)

Settings interface

A default Data Saver settings user interface is supplied in the Android Open Source Project (AOSP). See the screenshots below for examples.

These screenshots show the Data Saver mode in use.



Data usage

Usage

300 MB cellular data

Mar 1 - Mar 30

0 MB 1 GB 2 GB

1 GB Data warning / 2 GB Data limit

Data Saver
Off

Cellular

Cellular data

Use data while roaming

Cellular data usage
20 apps used data

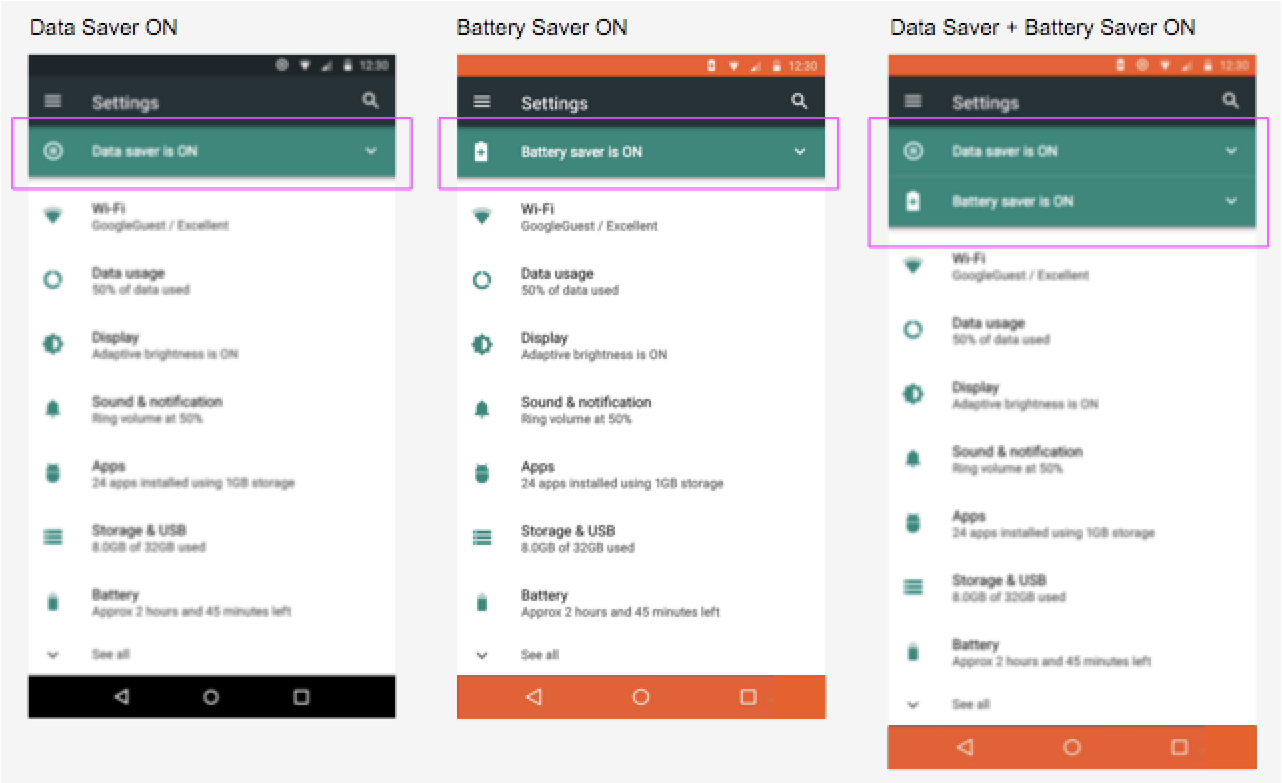
Data saver

Off

Unrestricted data access
1 app allowed to use unrestricted data when Data Saver is on

To help reduce data usage, Data Saver prevents some apps from sending or receiving data in the background. An app you're currently using can access data, but may do so less frequently. This may mean, for example, that images don't display until you tap them.

Figure 1. Toggling Data Saver off/on



Data Saver ON

Settings

Data saver is ON

Wi-Fi
GoogleGuest / Excellent

Data usage
50% of data used

Display
Adaptive brightness is ON

Sound & notification
Ring volume at 50%

Apps
24 apps installed using 1GB storage

Storage & USB
8.0GB of 32GB used

Battery
Approx 2 hours and 45 minutes left

See all

Battery Saver ON

Settings

Battery saver is ON

Wi-Fi
GoogleGuest / Excellent

Data usage
50% of data used

Display
Adaptive brightness is ON

Sound & notification
Ring volume at 50%

Apps
24 apps installed using 1GB storage

Storage & USB
8.0GB of 32GB used

Battery
Approx 2 hours and 45 minutes left

See all

Data Saver + Battery Saver ON

Settings

Data saver is ON

Battery saver is ON

Wi-Fi
GoogleGuest / Excellent

Data usage
50% of data used

Display
Adaptive brightness is ON

Sound & notification
Ring volume at 50%

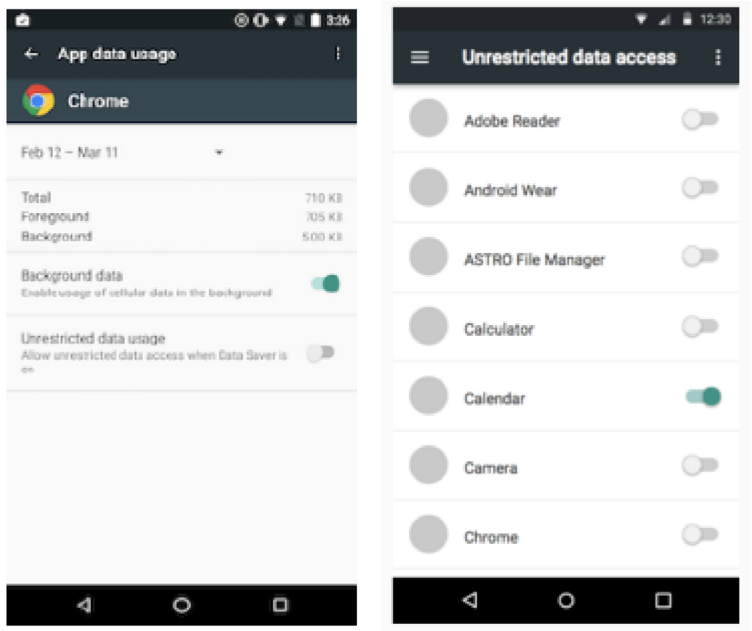
Apps
24 apps installed using 1GB storage

Storage & USB
8.0GB of 32GB used

Battery
Approx 2 hours and 45 minutes left

See all

Figure 2. When both battery saver and Data Saver are on



App data usage

Chrome

Feb 12 – Mar 11

Total	710 KB
Foreground	705 KB
Background	5.00 KB

Background data ● on
Enable usage of cellular data in the background

Unrestricted data usage ○ off
Allow unrestricted data access when Data Saver is on

Unrestricted data access

Adobe Reader	○ off
Android Wear	○ off
ASTRO File Manager	○ off
Calculator	○ off
Calendar	● on
Camera	○ off
Chrome	○ off

Figure 3. App-specific data usage screen: Settings > Apps > Data usage

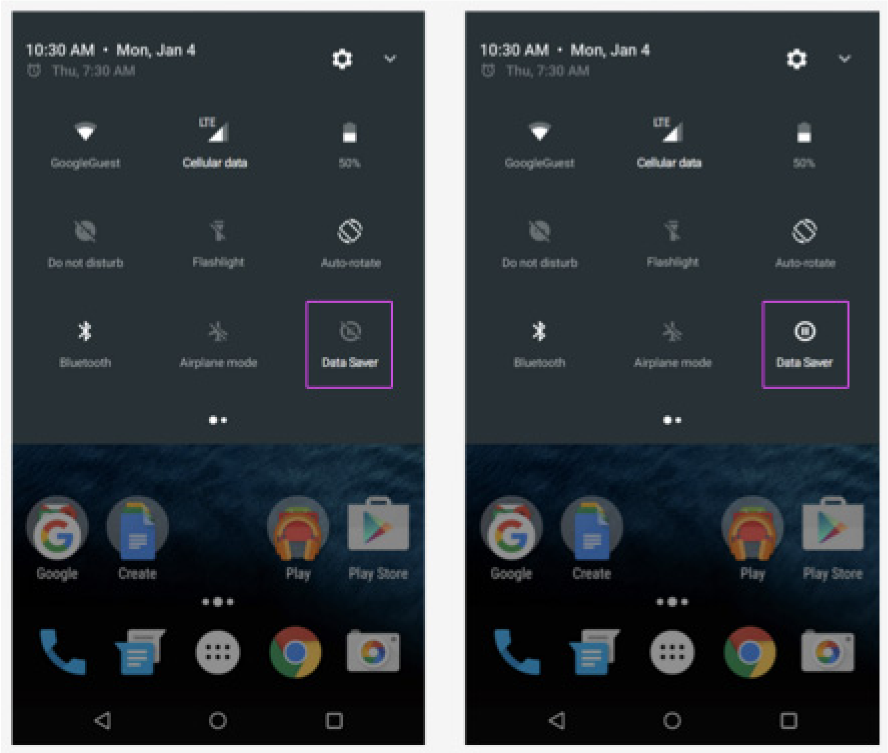


Figure 4. Data saver states on the Quick Settings menu

Apps

Important: Device implementers should not whitelist apps. Even if they do, users may remove them. Including other apps forces users to decide on which to apply Data Saver.

All app developers must act to implement Data Saver, including OEMs and carriers with preloaded apps. See Data Saver on developer.android.com (https://developer.android.com/training/basics/network-ops/data-saver) for app developer instructions on detecting and monitoring Data Saver states. See the sections below for additional details helpful to partners.

To optimize for Data Saver mode, apps should:

- Remove unnecessary images
- Use lower resolution for remaining images
- Use lower bitrate video
- Trigger existing “lite” experiences
- Compress data
- Respect metered vs. unmetered network status even when Data Saver is off

Conversely, to work well with Data Saver, apps should not:

- Autoplay videos
- Prefetch content/attachments
- Download updates / code
- Ask to be whitelisted unless background data is truly part of core functionality
- Treat whitelisting as a license to use more bandwidth

Validation

Implementers can ensure their version of the feature works as intended by running the following CTS test:

```
com.android.cts.net.HostsideRestrictBackgroundNetworkTests
```

In addition, `adb` commands can be used to conduct tests manually by first running this command to see all available options:

```
$ adb shell cmd netpolicy
```

For example, this command returns the UIDs of the whitelisted apps:

```
$ adb shell cmd netpolicy list restrict-background-whitelist
```

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